

IN THE CLAIMS:

The current claims follow. For claims not marked as amended in this response, any difference in the claims below and the previous state of the claims is unintentional and in the nature of a typographical error.

1. (Currently Amended) A method for smoothing, comprising:

loading, in a data processing system, a model having ~~at least one node~~ a plurality of nodes;

receiving a selection of a node of the model;

determining a nodal valency of the selected node;

determining an element connectivity pattern of the selected node;

performing a smoothing operation on the selected node according to the nodal valency and the element connectivity pattern; and

storing the model.

2. (Original) The method of claim 1, wherein

if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;

if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;

if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and

if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.

3. (Original) The method of claim 1, wherein the smoothing of the node is performed using

$$P_i' = \sum_{n=1}^N F_n(C, V) * \Omega_n(C, V)$$

and wherein i is the node to be smoothed, i is connected to N elements, P_i' is the new position of node i, F_n is the variational weight factor for n-th element Ω_n is the positional function for n-th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

4. (Original) The method of claim 1, further comprising performing an interior angle screening process.

5. (Cancelled) ~~The method of claim 1, further comprising constraining the node within a predetermined tolerance.~~

6. (Currently Amended) A data processing system having at least a processor and accessible memory, comprising:
means for loading a graphic model having at least one node a plurality of nodes;
means for receiving a selection of a node of the graphic model;
means for determining a nodal valency of the selected node;
means for determining an element connectivity pattern of the selected node;
means for performing a smoothing operation on the selected node according to the nodal valency and the element connectivity pattern; and
means for storing the model.

7. (Original) The data processing system of claim 6, wherein

- if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;
- if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;
- if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and
- if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.

8. (Original) The data processing system of claim 6, wherein the smoothing of the node is performed using

$$P_i' = \sum_{n=1}^N F_n(C, V) * \Omega_n(C, V)$$

and wherein i is the node to be smoothed, i is connected to N elements, P_i' is the new position of node i, F_n is the variational weight factor for n-th element Ω_n is the positional function for n-th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

9. (Original) The data processing system of claim 6, further comprising means for performing an interior angle screening process.

10. (Cancelled) ~~The data processing system of claim 6, further comprising means for constraining the node within a predetermined tolerance.~~

11. (Currently Amended) A computer program product tangibly embodied in a machine-readable medium, comprising:
instructions for loading, in a data processing system, a graphic model having at least one node a plurality of nodes;
instructions for receiving a selection of a node of the graphic model;
instructions for determining a nodal valency of the selected node;
instructions for determining an element connectivity pattern of the selected node;
instructions for performing a smoothing operation on the selected node according to the nodal valency and the element connectivity pattern; and
instructions for storing the model.

12. (Original) The computer program product of claim 11, wherein
if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;
if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;
if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and
if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.

13. (Original) The computer program product of claim 11, wherein the smoothing of the node is performed according using

$$P_i' = \sum_{n=1}^N F_n(C, V) * \Omega_n(C, V)$$

and wherein i is the node to be smoothed, i is connected to N elements, P_i' is the new position of node i, F_n is the variational weight factor for n-th element Ω_n is the positional function for n-th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

14.(Original) The computer program product of claim 11, further comprising instructions for performing an interior angle screening process.

15.(Cancelled) ~~The computer program product of claim 11, further comprising instructions for constraining the node within a predetermined tolerance.~~